Review Article

Medical or surgical approaches to obesity treatment, or both?

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Abstract

Obesity is a growing concern in the medical profession, particularly due to the co-morbidities that are related to obesity. Various methods have been trialled to manage obesity with varying effects, but can we ever say that one which is better than the other? This article looks at various lifestyle, pharmacological and surgical aspects of the management of obesity and discusses the diverse theories as to why the maintenance of weight loss can be difficult.

Key Words

Obesity, lifestyle, CBT, medication, bariatric surgery

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Obesity is defined as a medical condition in which excessive fat accumulation causes a negative impact on health.[1] It is defined as a Body Mass Index equal or greater to 30. A sustained decrease of 10% initial body weight is effective in reducing co-morbidities.[2] Current guidelines recommend a multi-disciplinary approach for obesity management.[3-4]

Lifestyle approaches include dietary modification and/or exercise/activity prescription and behavioural therapy. Diets can result in 2.1-6.6% weight loss.[5] Lifestyle changes are a long-term commitment and adherence to a diet plan is a big issue and one of the main causes that diets fail.[6] The addition of exercise to the dietary programs, significantly improve weight loss at follow up.[7] Behavioural therapy for obesity management is associated with an 8-10% weight loss. The issue with this intervention is that on discontinuation, the weight was noted to be regained.[8]

The underlying assumption of lifestyle interventions implies that the patient has responsibility to maintain the weight loss. Mark (2006) challenges this view and introduces a proposition that the underlying increase in appetite arises as a direct result of weight loss.[9] Liebel et al.'s study (1995)[10] suggests that weight loss results in a decrease in total energy expenditure, explaining why weight loss maintenance is difficult. An alternative explanation could be secondary to the hormonal changes, such as leptin deficiency[11] and ghrelin secretion, that occur during diet-induced weight loss.[12]

Medication, such as Orlistat a reversible lipase inhibitor and Liragutide a glucagon-like peptide-1, have been used in the treatment of obesity.[13-14] Orlistat is the only medication approved in the paediatric age group.[15] There is no doubt that anti-obesity medication is more effective than placebo in inducing weight loss.[16] However, this still only ranges between 0-7.6% weight loss.[8] Moreover, morbidly obese patients are less likely to respond to pharmacotherapy.[8]

Bariatric surgery has resulted in effective weight loss in morbidly obese patients.[17-18] This is namely offered to adults but recent trends show that it is also becoming a treatment option for adolescents.[19] There are 3 main types of bariatric surgery procedures:

1. Restrictive surgery: This involves a reduction of the stomach size through gastric banding, gastric sleeve or an intra-gastric balloon.
2. Malabsorptive surgeries: This involves re-organisation of the digestive system which impacts on its ability to absorb nutrients - e.g. jejunoileal bypass, duodenal-jejunal bypass or biliopancreatic division.
3. Combination Surgery: This involves a combination of restrictive and malabsorptive surgeries. Examples of this include Roux-en-Y gastric bypass and biliopancreatic diversion with duodenal switch.

One year on, the results of bariatric surgery are promising with 70 and 68% weight loss with biliopancreatic diversion and gastric bypass respectively and 48% weight loss following gastric banding.[17] Sleeve gastrectomy and Roux-en-Y gastric bypass have better remission rates than those following gastric banding.[20] Sleeve gastrectomy is a simpler procedure and is therefore easier to perform. It is associated with a reduced need of long-term post-operative multi-mineral and multi-vitamin supplementation. If the target weight loss is not achieved, this procedure can be revised.[20] Highest success in seen when such surgery is performed by a bariatric surgery specialist.

Mortality risks and health care cost following bariatric surgery is promising. Mortality is reduced by 89%[21] and health care costs are reduced by 29% at 5 years.[22] This combined with the added advantages of the wholly or partial resolution of diabetes[8] and improvement in the patient's quality of life - rated at 95% improvement,[23] places bariatric surgery as a valuable treatment option. Furthermore, long-term studies indicate sustained weight loss over 14 years, which is promising.[24]

As with all treatments, there is a risk-benefit ratio that needs to be taken into account. Brethauer et al. (2006)[8] phrases this succinctly: "the risks are not trivial, but they are acceptably low" (p. 993). Despite this, these must be explained and clarified to the person undergoing surgery in order to ensure that informed consent is achieved. The main surgical complications include bleeding, anastomotic leaks, wound infection, thromboembolism, anastomotic strictures, marginal ulcers, bowel obstruction and cholelitiasis. Nutritional deficiency (namely iron, calcium, Vitamin B12, Vitamin D) is another post-operative risk factor[25] that can lead to secondary co-morbidities such as secondary hyperparathyroidism. This can be managed by regular nutritional status levels and added supplementation.

The core of obesity management is in a multidisciplinary approach and often one will find that a combination of treatment modalities are used. If obesity is considered as a chronic illness[26] then a chronic disease model of care would be the most effective. This would imply that each individual's needs is assessed repeatedly throughout their care journey and a responsive care plan with the interventions tailored to the patients' needs. Bariatric surgery provides far greater improvement in terms of immediate/long-term and co-morbidity outcomes, particularly in the treatment of morbid obesity[4] and in those with diabetes.[8,20,24]

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